
SWMP Plan



CITY OF CHARLESTON

STORMWATER MANAGEMENT PROGRAM

Department of Public Service
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January 2011

PREPARED IN ACCORDANCE WITH THE SCDHEC PERMIT #SCR030000

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DECEMBER 2008.....
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CITY OF CHARLESTON

NPDES STORM WATER MANAGEMENT PROGRAM

1.0 Introduction

This purpose of this document is to describe the City of Charleston's Stormwater Management Program (SWMP) and the efforts that are being made to reduce stormwater pollution. The contents are expected to change with time in an iterative process of developing the SWMP recognized by the Environmental Protection Agency (EPA) and South Carolina Department of Health and Environmental Control (SCDHEC). Multiple permit terms (5-year term) are anticipated before significant pollution from stormwater runoff is realized. The first permit term will focus heavily on data collection, organization, development of necessary programs, and initial implementation. Following permit terms will amend the SWMP based on observed effectiveness of existing program components. This document is meant to be a living document that will be revised on an annual basis to reflect accomplishments, revisions to program components, and additions of other or expanded efforts.

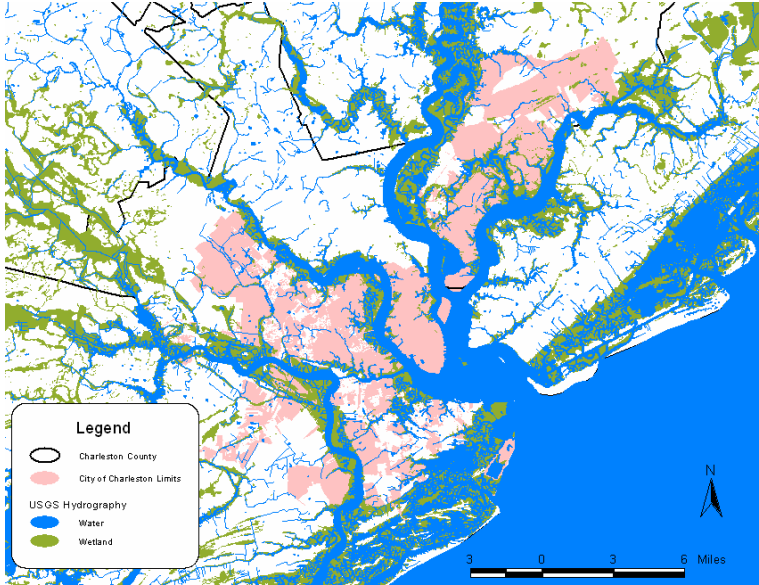
The sections of this document address each of the requirements of the General Permit for Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) Permit No. SCS03000, effective February 11, 2008 (general permit) and the Certificate of Coverage dated July 1, 2008. The section numbers used in this report correspond with the general permit section numbers.

2.0 Notice of Intent Requirements

The following information, per the general permit, constitutes the City of Charleston's Notice of Intent (NOI) application.

Table 1: NOI Table

General Permit Section	NOI Requirement	Description
2.2.1 Information on the Permittee:		
2.2.1.1	Name of Municipality:	City of Charleston
	Mailing Address:	Laura Cabiness City Engineer City of Charleston 75 Calhoun Street Third Floor Charleston, SC 29401
	Telephone Number:	843-724-3754
2.2.1.2	Public Entity Type:	City
2.2.2 Information on the MS4:		

General Permit Section	NOI Requirement	Description
2.2.2.1	Map of City of Charleston.	<p><u>MS4 Location:</u> City of Charleston <u>Center Coordinates:</u> Latitude: N32° 47' Urbanized Area Longitude: W79° 60'</p> <p><u>SMS4 Urbanized Area:</u> Approximately 121 square miles</p>  <p>See Appendix A for a larger map.</p>

General Permit Section	NOI Requirement	Description
2.2.2.2	Major Receiving Waters:	<p>Ashley River, Ashley River/Dill Creek, Ashley River/Duck Island Channel, Ashley River/Intracoastal Waterway/Wappoo Creek, Ashley River/James Island Creek, Ashley River/Keivling Creek, Ashley River/Mill Creek, Ashley River/Oldtown Creek, Ashley River/Orangegrove Creek, Ashley River/Wappoo Creek, Atlantic Ocean, Atlantic Ocean/Lighthouse Inlet, Bass Creek, Beresford Creek, Beresford Creek/Hopewell Creek, Beresford/Martin Creek, Block Island Creek, Bulls Creek, Charleston Harbor, Charleston Harbor/Ashley River, Charleston Harbor/Bass Creek, Charleston Harbor/Cooper River, Charleston Harbor/Kushiwah Creek, Charleston Harbor/Parrot Point Creek, Charleston Harbor/Schooner Creek, Church Creek, Clouter Creek, Clouter Creek/Beresford Creek, Colonial Lake, Cooper River, Cooper River/Clouter Creek, Cooper River/Newmarket Creek, Cooper River/Shipyard Creek, Cooper River/Town Creek, Cooper River/Wando River, Cooper River/Yellow House Creek, Dill Creek, Duck Island Channel, First Sister Creek, Flag Creek, Fogarty Creek, Folly Creek, Folly Creek/Secessionville Creek, Fort Johnson Creek, Guerin Creek, Holland Island Creek, Hopewell Creek, Hopewell Creek/Sanders Creek, Hut Creek, Intracoastal Waterway, Intracoastal Waterway/Elliott Cut, Intracoastal Waterway/Stono River, Intracoastal Waterway/Stono River/Long Branch Creek, Intracoastal Waterway/Stono River/Rantowles Creek, Intracoastal Waterway/Wappoo Creek, James Island Creek, James Island Creek/Simpson Creek, Johnfield Creek, Keivling Creek, Kushiwah Creek, Lighthouse Creek, Lighthouse Creek/Block Island Creek, Lighthouse Creek/First Sister Creek, Lighthouse Creek/Fort Johnson Creek, Lighthouse Creek/Lighthouse Inlet, Lighthouse Inlet, Long Branch Creek, Macbeth Creek, Marten Creek, Mill Creek, Newmarket Creek, Oldtown Creek, Orangegrove Creek, Parrot Point Creek, Pennys Creek, Pepper Gully, Ralston Creek, Rantowles Creek, Sanders Creek, Sandy Bay, Sandy Bay/Wappoo Creek, Schooner Creek, Schooner Creek/Parrot Point Creek, Seaside Creek, Secessionville Creek, Shipyard Creek, Simpson Creek, Stono River, Stono River/Elliott Cut, Stono River/Holland Island Creek, Stono River/Pennys Creek, Town Creek, Wando River, Wando River/Beresford Creek, Wando River/Fogarty Creek, Wando River/Guerin Creek, Wando River/Johnfield Creek, Wando River/Ralston Creek, Wappoo Creek, Wappoo Creek/Elliott Cut, Wolfpit Run, Yellow House Creek. A more detailed map is provided in Appendix A</p>
2.2.2.3	Indian Lands:	No portion of the City of Charleston's SMS4 is located on Indian Country Lands.

General Permit Section	NOI Requirement	Description
2.2.2.4	Other Governmental Entities:	<u>Office of Ocean and Coastal Resource Management (OCRM):</u> Responsible for portions of the construction site storm water runoff management and the post-construction storm water management components of the NPDES program.
2.2.2.5	BMP information:	See Section 4.0 – Storm Water Management Plan for a discussion of the BMPs for each minimum measure. Each contains all available information on the BMPs that are to be implemented, their measurable goals, schedule for implementation, and person(s) responsible.
2.2.2.6	List of significant entities within the City of Charleston: √ - indicates integral entities in City of Charleston's SWMP	The City of Charleston has several entities that are applicable for inclusion in this section. <u>Federal Entities:</u> <ul style="list-style-type: none"> ➤ FBI, ➤ DEA, ➤ Post Offices, ➤ GSA, ➤ INS, ➤ Secret Service, ➤ Federal Courthouse ➤ Coast Guard <u>State Entities:</u> <ul style="list-style-type: none"> ➤ State Port Authority ➤ MUSC <u>Sewer District:</u> <ul style="list-style-type: none"> ➤ Charleston Water System <u>Roads:</u> <ul style="list-style-type: none"> ➤ <u>SCDOT (road rights-of-way)</u> ➤ <u>Charleston County (road rights-of-way)</u> <u>Hospitals:</u> <ul style="list-style-type: none"> ➤ Bon Secours St. Francis (multiple locations) ➤ Roper Hospital <u>Universities</u> <ul style="list-style-type: none"> ➤ College of Charleston ➤ The Citadel <u>Prisons</u> <ul style="list-style-type: none"> ➤

3.0 Special Conditions

3.1 Discharges to Impaired Water Bodies

3.1.1.1 303(d) List

The general permit requires the City of Charleston to determine whether storm water discharges from any part of the SMS4 contribute one or more pollutants directly or indirectly to an impaired water body that is listed in the most recent South Carolina 303(d) list. The list identifies water bodies that do not currently meet state water quality standards. The list is intended to be used as a tool to determine what types of water quality improvement measures should be taken. To meet this permit requirement, the City of Charleston has collected information from SCDHEC on the location of impaired waters, as determined from results of the State's monitoring program, that could potentially be impacted by discharges from the City of Charleston MS4. A map showing the impaired waters is provided in Appendix B.

Table 2: 2008 303(d) list of stations within City of Charleston

Water - body Name	Station Description	Station	Basin	County	Hydrologic Unit	Impaired Use	Cause
Ashley River	Ashley River at Magnolia Gardens	MD-049	Santee	Charleston	03050202040	AL	Turbidity
Ashley River	Ashley River at Magnolia Gardens	MD-049	Santee	Charleston	03050202040	REC	FC
Church Creek	Church Creek Mouth	MD-246	Santee	Charleston	03050202040	REC	FC
Church Creek	Church Creek at SC 700, 1 mi SW of Cedar Springs	MD-195	Santee	Charleston	030502060404	AL	DO
Stono River	Stono River at SC 700	MD-026	Santee	Charleston	030502020202	AL	DO
Stono River	Stono River at S-10-20, 2 mi upstream of Clemson Experimental Station	MD-202	Santee	Charleston	030502020202	AL	CU
Charleston Harbor	Charleston Harbor at Ft. Johnson Pier at Marine Sci Lab	MD-165	Santee	Charleston	030502010707	AL	CU

Water - body Name	Station Description	Station	Basin	County	Hydrologic Unit	Impaired Use	Cause
Wando River	Wando River at I-526 (Mark Clark Expressway, 09B-15	MD-264	Santee	Charleston	030502010402	AL	NH3N

3.1.1.2 TMDLs

There are currently no TMDLs within the City of Charleston permit area.

3.1.2 Reasonable Assurance of TMDL Compliance

In accordance with Section 3.1 of the general permit, the City of Charleston is working to improve the quality of waters on the 303(d) list of impaired waters. The City of Charleston's approach to dealing with all impairments is the implementation of the BMPs for each of the minimum measures listed in Section 4. The BMPs and their corresponding schedules have been designed considering the pollutants of concern, cost and time to implement, limits in technology, difficulty in determining benefit, potential of "legacy" impacts to drive existing water quality constituents, and public safety and priorities. However, the BMPs are expected to reduce loads for all pollutants of concern to waters of the state. Public education and involvement programs being implemented by the Carolina Clear Program will teach citizens valuable lessons such as the environmental consequences of improperly maintained septic tanks. The illicit detection program will focus on reducing illegal dumping into the drainage system and adjacent waters of the state. Considerable work has been performed over the last decade to eliminate cross connection between sanitary sewers and stormwater collection systems. Although some illicit links may exist between the sanitary system and the stormwater system due to infiltration and inflow, these are being investigated through outfall screening and planned efforts to characterize the constituents in peninsula discharges. This will be an enormous task, particularly on the City's peninsula, but the BMPs for this minimum measure are expected to produce positive bacteria reductions from the City. The construction management program is a more robust version of previous development requirements with clearly defined sediment and construction waste control regulations, routine City oversight at active sites, and a fair enforcement policy. The post-construction program is intended to improve water quality design aspects of new and re-development through enforcement of SCDHEC/OCRM requirements and complete plan review.

In spite of these concerns and limitations, the City of Charleston will continue or initiate several steps to address the 303(d) list of impairments. These are listed below.

Table 3: BMPs focused on bacteria reductions

Agreement with Sewer Utilities			
Milestone	Schedule	Frequency	Responsible Party
Develop agreement with Charleston Water Service and others entities are necessary	12 months	Once	Public Service Department

Develop priority of sewer system investigation	12 months	Once	Public Service Department
Measurable Goals: <ul style="list-style-type: none"> Have agreement with sewer utilities in place Complete study of priority areas 			

4.0 Storm Water Management Programs (SWMP)

4.1 Requirements of the NPDES Phase II Program

The City of Charleston, which is an owner/operator of a MS4, is required to reduce the discharge of pollutants to waters of the State and the United States to the “maximum extent practicable” to protect water quality. At a minimum, the City of Charleston will be required to implement a Storm Water Management Program that will address the following issues:

Table 4: SWMP Requirements

General Permit Section	Description
4.1.1.1	The best management practices (BMPs) that will be implemented for each of the storm water minimum control measures.
4.1.1.2	The measurable goals for each of the BMPs, including interim milestones and the frequency of the action will be undertaken.
4.1.1.3	The person or persons responsible for implementing or coordinating the BMPs for the SWMP.
4.1.2	A rationale for how and why each of the BMPs and measurable goals for the SWMP were selected.

In order to meet these requirements, the first step the City of Charleston took was to have a third party conduct an audit to identify activities related to stormwater that the City of Charleston is currently doing and obvious deficiencies. This documentation is provided in Appendix C. The audit report documents the jobs and responsibilities of City of Charleston staff that deal directly and indirectly with storm water, and identified the major tasks that had to be setup and implemented for general permit compliance. The City of Charleston’s SWMP contained in this document is an extension of this effort to identify deficient areas related to permit requirements, followed by the development of specific BMPs in those areas.

In compliance with these requirements, this document provides details of the SWMP and a description of the six minimum control measures, including the performance requirements for each, an action plan to address the permit requirements, and the rationale for each proposed BMP. Furthermore, the details on each minimum measure contain the measurable goals for each proposed BMP, define the responsible departments and staff to implement the BMPs, and include implementation schedules (i.e. start date, frequency of activities, etc.).

In compliance with general permit section 4.1.3, this SWMP was adopted by City Council on May 31, 2009.

4.2 Minimum Control Measures

The following sections describe the components of the SWMP that satisfy each of the six minimum control measures.

To make the tracking of the implementation of each BMP more efficient, a BMP numbering system has been assigned to each of the six minimum measures that will be referenced throughout the SWMP. This abbreviation is related to the minimum measure that the BMP satisfies, plus a sequential numbering scheme.

4.2.1 PUBLIC EDUCATION AND OUTREACH ON STORM WATER IMPACTS (MINIMUM MEASURE #1)

4.2.1.1 Requirements

Implement a public education program to distribute educational materials or conduct outreach activities about the impacts of storm water discharges on water bodies and the steps that the general public can take to reduce pollutants in storm water runoff.

4.2.1.2 Decision Process

The Public Education and Outreach minimum measure consists of Best Management Practices (BMPs) that focus on the development of educational materials designed to inform the public about the impacts that storm water discharges have on local water bodies and the steps that the public can take to reduce pollutants in storm water runoff. The City of Charleston along with the Charleston County, the City of North Charleston, Berkeley County, and the Town of Summerville formed a coalition through the Clemson Extension's Carolina Clear Program. The coalition is officially titled the Ashley Cooper Stormwater Education Consortium (ACSEC). The ACSEC has contracted with the Carolina Clear program managed by staff at Clemson University's Cooperative Extension Service to help implement this minimum measure. Appendix D contains a copy of the agreement and the South Carolina Department of Health and Environmental Control's letter approving the program for use by regulated communities.

The selection of BMPs listed in the subsequent sections were voted on by ACSEC municipal representatives and describe how the general public, businesses, developers, engineers, and home and property owners will be informed about the importance of protecting our water resources; how individuals and groups will be informed on how to become involved in the storm water program; the mechanisms that will be used to reach target audiences, the pollutant sources of concern, responsibility for implementation in the ACSEC, and how success will be measured. The target audiences and pollutants of concern were selected based on a survey of the MS4 operators located within the City. The Public Education and Outreach efforts utilized through ACSEC are expected to reach all of the constituents within the City's permitted area. The target pollutant sources were selected through a survey of ACSEC municipal representatives and include construction site runoff, pesticide and fertilizer use, general watershed information, and other pollutant sources as identified to be of local concern. Evaluation of the success of this minimum measure will be through careful analysis provided as part of the contract with Clemson University Extension's Carolina Clear program (Carolina Clear) of the measurable goals for each BMP included in this minimum measure. Measurable goals for each BMP were selected by formulating attainable goals for the various BMP implementation steps or tasks. The responsibility for implementation of this minimum measure is described with each BMP procedure.

Rational Statement:
4.2.1.2.1 The plan to inform individuals and households about the steps they can take to reduce storm water pollution:
<p>Carolina Clear has developed a robust public awareness and marketing campaign to include radio and television public service announcements, as well as newspaper advertisements, billboard messages, and miscellaneous flyers for distribution in utility/tax bill or at select locations such as restaurants, universities, and shopping centers. The year 2 annual report can be viewed at:</p> <p>http://people.clemson.edu/~djoyner/docs/ACSEC Annual Reports/annual_report_acsec_year2_final.pdf</p>
4.2.1.2.2 The plan to inform individuals and groups on how to become involved in the storm water program:
<p>The public awareness and marketing campaign will include messages that provide information on how individuals and the various target groups can become involved. Research has shown that once people understand the consequences of their actions, they are more receptive to acquiring knowledge and skills to change their behavior.</p>
4.2.1.2.3 The target audiences for public education who are likely to have significant storm water impacts and why they were selected:
<p>The target audiences were developed based on a consensus of the ACSEC as to which have the greatest potential to impact water quality as well as those that will be the most receptive to altering their actions either with their current knowledge or with the education they will receive as part of the ACSEC's efforts. The target audiences along with the education programs are listed below.</p> <ul style="list-style-type: none"> ➤ General Public: website, public service announcements, festivals/fairs, beach and river sweeps, and signage. ➤ Developers/Engineers: CEPSCI (inspector training), CSPR (plan reviewer training). ➤ Home and Property Owners: Coast-A-Syst, Carolina Yards and Neighborhoods. ➤ School Children (K-12) and Teachers: 4-H₂O, online curriculum, in-class presentations, and teacher workshops. ➤ Coastal Resources Managers: workshops. ➤ Municipal Officials: workshops and SC NEMO.
4.2.1.2.4 The target pollutant sources the public education is designed to address:
<p>The target audiences and the corresponding target pollutant sources are listed below.</p> <ul style="list-style-type: none"> ➤ General Public: sediment, litter, nutrients, hazmat, and fecal coliform. ➤ Developers/Engineers: sediment. ➤ Home and Property Owners: nutrients, hazmat, and fecal coliform. ➤ School Children (K-12) and Teachers: sediment, litter, nutrients, hazmat, and fecal coliform. ➤ Coastal Resources Managers: sediment, litter, nutrients, hazmat, and fecal coliform. ➤ Municipal Officials: sediment, litter, nutrients, hazmat, and fecal coliform.
4.2.1.2.5 The outreach strategy used to reach the target audiences and how many people expected to be reached by this strategy over the permit term:

<p>See answer to 4.2.1.2.3. A description of some of the programs listed there is provided below.</p> <ul style="list-style-type: none"> ➤ Coast-A-Syst: a program consisting of a series of environmental self assessments, or checklists that make it easy for homeowners to record activities and conditions around the home that may affect water quality. By completing and acting upon these risk assessments, participants will identify environmental concerns or problems, learn how to manage their home and property more modestly, and learn to take preventative actions to safeguard their health and the health of the coastal environment. ➤ Carolina Yards and Neighborhoods: a program designed to help individuals and families transform their yards into beautiful landscapes by adopting environmentally friendly landscape practices that will not only conserve water resources and reduce pollution, but will also save time, energy, and money. ➤ 4-H₂O: a community-supported and field-based program that provides youth and adults with knowledge about their local water resources. It teaches them field skills, analytical skills, and critical thinking skills, all of which are needed to intelligently participate in making decisions that affect the quality of these environments. ➤ SC NEMO: a program designed to inform and educate local officials on how local land use decisions and polluted runoff are inextricably linked, in an effort to have non-point source pollution considered more when land use policy decisions are made. SC NEMO was founded by Clemson Extension Service in 1998 and has worked in almost every Priority Impaired watershed throughout South Carolina.
<p>4.2.1.2.6 The responsible party for overall management and implementation of the storm water public education and outreach program and, if different, the responsible party for each milestone listed above:</p>
<p>The Public Service Department will oversee the development and implementation of this minimum measure and corresponding BMPs. Carolina Clear will assist in the development and implementation of this measure.</p>
<p>4.2.1.2.7 How success of this minimum measure will be evaluated:</p>
<p>The success will be measured by the degree of implementation, to include the number of target audiences reached and participating through the public awareness and marketing campaign. Records will be reviewed as to the number of signs produced and placed in the City, number of televisions and radio spots aired, number of training workshops held, number of students taught, etc.</p>

List of Best Management Practices

BEST MANAGEMENT PRACTICES – Minimum Measure #1			
BMP MM1-1: Negotiate Agreement with Clemson University Cooperative Extension Service			Completed: <input checked="" type="checkbox"/>
			Date: April 9, 2008
Milestones	Schedule *	Frequency	Responsible Party
Prepare and execute an agreement with the Clemson University Cooperative Extension Service – Carolina Clear Program	12 months	Once	Public Service Department
Present agreement to the SCDHEC for review	15 months	Annually	Public Service Department
Present agreement to the City of Charleston Council for review	18 months	Annually	Public Service Department
Implement agreement	24 months	Annually	Public Service Department
Measurable Goals:			

- Existence of the agreement with the Clemson University Cooperative Extension Service – Carolina Clear Program and the City of Charleston.

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

BMP MM1-2: Research Existing City Educational Materials

Completed: ☒

Date: 12/20/2010

Milestones	Schedule *	Frequency	Responsible Party
Prepare a list of existing educational programs implemented by the City that discuss water quality related issues or where water quality education could be inserted.	15 months	Once	Public Service Department
Expand existing education programs to include water quality.	24 months	Annually	Public Service Department
Conduct the education sessions.	30 months	Annually	Public Service Department

Measurable Goals:

- Number of copies of educational materials developed and distributed.
- Number of education sessions held.

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

BMP MM1-3: Storm water press releases and articles

Completed: ☒

Date: 12/22/2010

Milestones	Schedule *	Frequency	Responsible Party
Develop list of avenues of distribution	15 months	Biennially	Public Service Department
Develop and distribute press releases	30 months	Annually	Public Service Department
Develop and distribute articles	30 months	Annually	Public Service Department

Measurable Goals:

- Number of press releases distributed
- Number of articles distributed

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

BMP MM1-4: Webpage development and E-learning

Completed: ☒

Date: 12/22/2010

Milestones	Schedule *	Frequency	Responsible Party
Develop webpage	12 months	Once	Public Service Department
Develop E-learning programs	15 months	Once	Public Service Department
Revise/Enhance webpage and E-learning programs	24 months	Annually	Public Service Department

Measurable Goals:

- Number of visits to the webpage.
- Number of visits to the E-learning programs.
- Testing/quiz results.

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

BMP MM1-5: Televisions stormwater PSAs

Completed: ☒

Date: 12/22/2010

Milestones	Schedule *	Frequency	Responsible Party
Develop PSAs	15 months	Once	Public Service Department
Develop agreement with TV stations	18 months	Once	Public Service Department
Revise/Enhance PSAs	30 months	Annually	Public Service Department

Measurable Goals:

- Number of PSAs developed.
- Nielson ratings.

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

BMP MM1-6: Radio stormwater PSAs

Completed: ☒

Date: 12/22/2010

Milestones	Schedule *	Frequency	Responsible Party
Develop PSAs	15 months	Once	Public Service Department
Develop agreement with radio stations	18 months	Once	Public Service Department
Revise/Enhance PSAs	30 months	Annually	Public Service Department

Measurable Goals:

- Number of PSAs developed.
- Arbitron ratings.

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

BMP MM1-7: Television and radio special programs

Completed: ☒

Date: 12/22/2010

Milestones	Schedule *	Frequency	Responsible Party
Develop additional PSAs such "Your Day" and "Making It Grow"	24 months	Once	Public Service Department

Measurable Goals:

- Number of PSAs developed.
- Nielson and Arbitron ratings.

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

4.2.2 PUBLIC PARTICIPATION AND INVOLVEMENT (MINIMUM MEASURE #2)

4.2.2.1 Requirements

Implement a public participation and involvement program that complies with State, Tribal, and local public notice requirements.

4.2.2.2 Decision Process

The Public Involvement/Participation minimum measure consists of Best Management Practices (BMPs) that focus on providing opportunities of the various sectors of the public to become involved in stormwater management activities. The City of Charleston along with the Charleston County, the City of North Charleston, Berkeley County, and the Town of Summerville formed a coalition through the Clemson Extension's Carolina Clear Program. The coalition is officially titled the Ashley Cooper Stormwater Education Consortium (ACSEC). The ACSEC has contracted with the Carolina Clear program managed by staff at Clemson University's Cooperative Extension Service to implement this minimum measure. Appendix D contains a copy of the agreement and the South Carolina Department of Health and Environmental Control's letter approving the program for use by regulated communities.

The selection of BMPs listed in the subsequent sections were voted on by ACSEC municipal representatives and describe how the general public, businesses, developers, engineers, and home and property owners will be informed about the steps they can take to reduce storm water pollution and how success will be measured. The target audiences, programs, and pollutants of concern were selected based on a survey of the MS4 operators located within the City. The Public Education and Outreach efforts utilized through ACSEC are expected to reach all of the constituents within the City's permitted area. The target pollutant sources were selected through a survey of ACSEC municipal representatives and again include construction site runoff, pesticide and fertilizer use, general watershed information, and other pollutant sources as identified to be of local concern, i.e., approved TMDL parameters. Evaluation of the success of this minimum measure will be through careful analysis provided as part of the contract with Clemson University Extension's Carolina Clear program (Carolina Clear) of the measurable goals for each BMP included in this minimum measure. Measurable goals for each BMP were selected by formulating attainable goals for the various BMP implementation steps or tasks. The responsibility for implementation of this minimum measure is described with each BMP procedure.

Rational Statement:
4.2.2.2.1 The plan to involve the public in the development and submittal of the SWMP:
The plan was adopted by City Council. It was placed on the City's website and at the public library for public comment. Selected City departments and possible some other individuals were given copies for review. The City is developing a Stormwater Round Table as another venue for the general public, developers/engineers, youths, and other groups to influence the direction of the SWMP in the future. Guidance on the elements in the SWMP is also obtained from quarterly meetings of the stormwater managers from various MS4s within Charleston, Berkeley and Dorchester Counties.
4.2.2.2.2 The plan to involve the public in the development and implementation of the SWMP:

<p>The Charleston Green Committee seems to be the best avenue for public involvement at this time. They will be addresses periodically during the permit cycle. This will provide an avenue for citizens and groups to be involved in the process and give feedback to the City. In addition, a Citizen Help Desk has been developed and implemented to allow citizens, visitors, etc. to submit a complaint or request, get an issue resolved, or voice a concern. This service is available online at www.govhost.com/charleston%2Dsc/. The Mayor's monthly Night-In provides another avenue for citizens to voice complaints and requests. As always, citizens can and do call various City Departments directly with complaints or requests. These are recorded in work order systems and addressed based on priority.</p>
<p>4.2.2.2.3 The audiences targeted for involvement and a demographic description of each:</p>
<p>The target audiences were developed based on a consensus of the ACSEC as to which have the greatest potential to impact water quality as well as those that will be the most receptive to altering their actions either with their current knowledge or with the education they will receive as part of the ACSEC's efforts. The target audiences along with the education programs are listed below.</p> <ul style="list-style-type: none"> ➤ General Public: website, public service announcements, festivals/fairs, beach and river sweeps, and signage. ➤ Developers/Engineers: CEPSCI (inspector training), CSPR (plan reviewer training). ➤ Home and Property Owners: Coast-A-Syst, Carolina Yards and Neighborhoods. ➤ School Children (K-12) and Teachers: 4-H₂O, online curriculum, in-class presentations, and teacher workshops. ➤ Coastal Resources Managers: workshops. ➤ Municipal Officials: workshops and SC NEMO.
<p>4.2.2.2.4 The specific activities that will involve the public:</p>
<p>4.2.2.2.4.1 Citizen representative on a storm water management panel</p>
<p>Citizen participation in development of the SWMP was minimal. Despite multiple chances and opportunities given to City staff and the general public there was very little input received.</p>
<p>4.2.2.2.4.2 Public Hearings</p>
<p>The Charleston Green Committee appears to be the best forum for this. They meet in a forum where the general public is always welcome.</p>
<p>4.2.2.2.4.3 Working with citizen volunteers willing to educate others about the programs; and</p>
<p>The Charleston Green Committee is made up of citizen volunteers. These members will be encouraged to educate others at appropriate venues on the importance of stormwater management.</p>
<p>4.2.2.2.4.4 Storm drain marking stenciling and tagging, volunteer monitoring or stream/beach cleanup activities</p>
<p>The ACSEC will continue to conduct storm drain stenciling programs with school children and neighborhood/libraries programs as they are identified. The City of Charleston marks storm drains in high traffic areas and areas where illicit discharges have or are likely to occur. Keep Charleston Beautiful also organizes citizen clean up activities.</p>
<p>4.2.2.2.5 The responsible party for overall management and implementation of the storm water public participation and involvement program and, if different, the responsible party for each milestone listed above:</p>
<p>The Public Service Department will oversee the development and implementation of this minimum measure and corresponding BMPs. Carolina Clear will assist in the development and implementation of this measure.</p>

4.2.1.2.6 How success of this minimum measure will be evaluated:

The success will be measured by the degree of implementation, to include the number of complaints, issues, requests fulfilled that are submitted through the Citizen Help Desk/Gov QA. Records will be developed as to the number of citizens or groups that are involved in the tasks of this minimum measure.

List of Best Management Practices

BEST MANAGEMENT PRACTICES – Minimum Measure #2			
BMP MM2-1: Negotiate Agreement with Clemson University Cooperative Extension Service			Completed: <input checked="" type="checkbox"/>
			Date: April 9, 2008
Milestones	Schedule *	Frequency	Responsible Party
Prepare and execute an agreement with the Clemson University Cooperative Extension Service – Carolina Clear Program	12 months	Once	Public Service Department
Present agreement to the SCDHEC for review	15 months	Annually	Public Service Department
Present agreement to the City of Charleston Council for review	18 months	Annually	Public Service Department
Implement agreement	24 months	Annually	Public Service Department
Measurable Goals:			
<p>➤ Existence of the agreement with the Clemson University Cooperative Extension Service – Carolina Clear Program and the City of Charleston.</p> <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			
BMP MM2-2: Citizen Help Desk			Completed: <input checked="" type="checkbox"/>
			Date: Sept, 2007
Milestones	Schedule *	Frequency	Responsible Party
Establish and implement webpage to allow citizens to submit request or complaints	Completed	Once	Public Service Department
Establish tracking system for submittals	24 months	Annually	Public Service Department
Revise system as needed	30 months	Annually	Public Service Department
Measurable Goals:			
<p>➤ Implementation of the webpage and tracking system.</p> <p>➤ Number of citizen help desk tickets submitted and addressed.</p> <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			
BMP MM2-3: Establish Regional Stormwater Round Table			Completed: <input type="checkbox"/>

			Date: XX, 200X
Milestones	Schedule *	Frequency	Responsible Party
Develop list of groups involved	12 months	Biennially	Public Service Department
Develop discussion topics for sessions	18 months	Annually	Public Service Department
Conduct round table sessions	24 months	Quarterly	Public Service Department
Measurable Goals:			
<ul style="list-style-type: none"> ➤ Number of groups/individuals involved. ➤ Number of sessions held. ➤ Number of published articles. ➤ Press conferences. <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			
BMP MM2-4: Community Stormwater Seminars & Education Programs			Completed: <input checked="" type="checkbox"/>
			Date: 12/22/2010
Milestones	Schedule *	Frequency	Responsible Party
Develop seminars topics	12 months	Annually	Public Service Department
Conduct seminars	15 months	Biannually	Public Service Department
Revise/Enhance programs	24 months	Biennially	Public Service Department
Measurable Goals:			
<ul style="list-style-type: none"> ➤ Number of attendees at each sessions. ➤ Testing/quiz results or other evaluation results. <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			
BMP MM2-5: Carolina Yards and Neighborhoods			Completed: <input checked="" type="checkbox"/>
			Date: 12/22/2010
Milestones	Schedule *	Frequency	Responsible Party
Develop material for webpage and other media outlets	15 months	Once	Public Service Department
Broadcast material	18 months	Continuous	Public Service Department
Revise/Enhance program	30 months	Biennially	Public Service Department
Measurable Goals:			
<ul style="list-style-type: none"> ➤ Number of people participating. ➤ Results of evaluations/tests. <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			
BMP MM2-6: Special Targeted Stormwater Programs			Completed: <input checked="" type="checkbox"/>
			Date: 12/22/2010

Milestones	Schedule *	Frequency	Responsible Party
Develop material and target groups	15 months	Once	Public Service Department
Distribute material	18 months	Continuous	Public Service Department
Revise/Enhance programs	30 months	Biennially	Public Service Department
Measurable Goals:			
<ul style="list-style-type: none"> ➤ Number of people participating. ➤ Results of evaluations/tests. <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			
BMP MM2-7: Special Youth Stormwater Programs			Completed: <input checked="" type="checkbox"/>
			Date: 12/22/2010
Milestones	Schedule *	Frequency	Responsible Party
Develop material and target groups	15 months	Once	Public Service Department
Distribute material	18 months	Continuous	Public Service Department
Revise/Enhance programs	30 months	Biennially	Public Service Department
Measurable Goals:			
<ul style="list-style-type: none"> ➤ Number of youths/schools participating. ➤ Results of evaluations/tests. <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

4.2.3 ILLICIT DISCHARGE DETECTION AND ELIMINATION (MINIMUM MEASURE #3)

The City of Charleston will design and implement policies and procedures that will address illicit discharge detection and elimination.

4.2.3.1 Requirements

- 4.2.3.1.1 Develop, implement and enforce a program to detect and eliminate illicit discharges.
- 4.2.3.1.2 Develop a storm sewer system map showing the location of all outfalls and the names and location of all waters of the State that receive discharges from those outfalls.
- 4.2.3.1.3 To extent allowable under State, Tribal or local law, effectively prohibit, through ordinance, or other regulatory mechanism, non-storm water discharges into storm sewer system and implement appropriate enforcement procedures and actions;
- 4.2.3.1.4 Develop and implement a plan to detect and address non-storm water discharges, including illegal dumping, into your storm sewer system.
- 4.2.3.1.5 Inform public employees, businesses, and the general public regarding hazards associated with illegal discharges and the improper disposal of waste.
- 4.2.3.1.6 Address following illicit discharges if they are significant contributors of pollutants: water line flushing, landscape irrigation, diverted stream flows, rising ground waters, uncontaminated ground water infiltration, uncontaminated condensation, irrigation water, springs, water from crawl space pumps, footing drains, lawn watering, individual residential

- car washing, flows from riparian habitats and wetlands, de-chlorinated swimming pool discharges, and street wash water
- 4.2.3.1.7 Develop a list of other similar occasional incidental non-storm water discharges that will not be addressed as illicit discharges. These non-storm water discharges must not be reasonably expected to be significant sources of pollutants to the SMS4, because of either the nature of the discharges or conditions you have established for allowing these discharges to your SMS4. You must document in your SWMP any local controls or conditions placed on the discharges. You must include a provision prohibiting any individual non-storm water discharge that is determined to be contributing significant amounts of pollutants to your SMS4.

4.2.3.2 Decision Process

The Illicit Discharge Detection and Elimination minimum measure consists of Best Management Practices (BMPs) that focus on the detection and elimination of illicit discharges into the MS4. A storm sewer system map showing the location of all outfalls and the names and location of all receiving waters will be developed and maintained through field data collection efforts. In addition, development of a system inventory of the entire stormwater collection system has been underway over the course of the permit term. This will result in increased knowledge of the dynamics of the system and improved problem resolution. The BMPs listed below describe map development and update procedures; the legal authority mechanism (to the extent allowable under State, Tribal or local law) used to effectively prohibit illicit discharges; enforcement procedures and actions to ensure that the regulatory mechanism is implemented; the dry weather screening program and procedures for tracing and locating the source of an illicit discharge; procedures for locating priority areas; and procedures for removing the source of the illicit discharge. BMPs focusing on education and training of public employees, businesses, and the general public with regard to the hazards associated with illegal discharges and improper disposal of waste are described in the Public Education and Good Housekeeping minimum measures. Evaluation of the success of this minimum measure will be based on the level of implementation of the BMPs included in this minimum measure. The responsibility for implementation of this minimum measure is described with each BMP procedure.

Rational Statement:	
4.2.3.2.1	How will you develop a storm sewer map showing the location of all outfalls and the names and location of all receiving waters? Describe the sources of information you used for the maps, and how you plan to verify the outfall locations with field surveys. If already completed, describe how you developed this map. Also, describe how your map will be regularly updated.
	<p>To make a comprehensive storm sewer map EPA recommends collecting all available existing information that may include outfall locations such as City of Charleston records, construction plans, and drainage studies and then field verifying their locations. Most of the storm sewer system in the City of Charleston is not identified on available mapping. In order to obtain a comprehensive map of the City of Charleston's outfalls, it will be necessary to walk the jurisdictional waterways and locate outfalls by visual observation.</p> <p>A map of the City of Charleston limits showing watersheds, streams and locations of regulated outfalls will be created by following individual stormwater pipe networks to their endpoint and walking/boating the streams looking for outfalls. The City of Charleston plans to use GPS and GIS technology in the mapping process, but may follow EPA guidance should the GPS/GIS technology be cost prohibitive. Regulated outfalls will be identified, located and evaluated. A procedures manual will document the procedure. The manual will include procedures for updating outfalls that are constructed with new developments.</p>
4.2.3.2.2	The mechanism (ordinance or other regulatory mechanism) you will use to effectively prohibit illicit discharges into the MS4 and why you choose that mechanism? If you need to develop this mechanism, describe your plan and a schedule to do so. If your ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with you program.

	<p>The City of Charleston Council has adopted a comprehensive storm water management ordinance (See Appendix E). This ordinance contains a section prohibiting illicit discharges and corresponding enforcement procedures. The ordinance charges the Public Service to develop procedures for detecting and eliminating discharges. The City will develop and implement such procedures over the course of the permit term.</p>
4.2.3.2.3	<p>The plan to ensure, through appropriate enforcement procedures and action, that your illicit discharge ordinance (or other regulatory mechanism) is implemented?</p>
	<p>The procedures develop in response to the ordinance, will address prioritizing sources and areas, illicit detection and removal, communication with other governments and agencies, and enforcement. As part of the effort, each outfall will be inspected at least once during each the permit term. Citizen complaint will be an integral part of illicit discharge detection. Enforcement procedures will be given adequate notice to correct the illicit discharge prior to further legal actions. The procedures manuals are given in Appendix F.</p>
4.2.3.2.4	<p>Your plan to detect and address illicit discharges to your system, including discharges from illegal dumping and spills. Your plan must include dry weather field screening for non-storm water flows and field tests of selected chemical parameters as indicators of discharge sources. Your plan must also address on-site sewage disposal systems that flow into your storm drainage system. Your description must address the following, at a minimum:</p>
4.2.3.2.4.1	<p>Procedures for locating priority areas which includes areas with higher likelihood of illicit connections (e.g. areas with older sanitary sewer lines, for example) or ambient sampling to locate impacted reaches;</p>
	<p>Initial detection of illicit will focus on outfall observation and removal of discharges determined to have unacceptable pollutant levels. System mapping efforts will also focus on observation and elimination of illicit connections. Future efforts will focus on other areas and land uses that may contribute to pollution. These areas will prioritized based pollution causing potential. Implementation of detection procedures in these area will be conducted in future permit terms. The City will also be conducting a monitoring study of discharges from a set of peninsula outfalls. The data collected will provide a characterization of the pollutant levels in peninsula discharges to be compared to water quality standards and other municipal stormwater pollutant levels.</p>
4.2.3.2.4.2	<p>Procedures for tracing the source of an illicit discharge, including the specific techniques you will use to detect the location of the source;</p>
	<p>A standard operating procedures manual for detecting and eliminating illicit discharges from outfalls will be developed an can be found in Appendix F. Initial dry weather flow occurrences will be collected during the outfall inventory process. Any flow detected will be tracked upstream to the source. Outfalls previously identified will be revisited to checked for dry weather flow and any flow detected tracked upstream. The City will also rely and follow-up on citizen reports of potential illicit discharges. Tracking will be done in lieu of taking multiple samples to save analysis time. Samples will be taken and analyzed once the source is found to identify the sources as an illicit. Removal procedures will implemented as necessary after sample analysis.</p> <p>In addition to these planned field operations, the City has educated operation staff to look for and report illicit discharges that may be found during routine maintenance activities or other public service operations. Such discharges are reported to other City staff who conduct a formal investigation to determine what the discharge is and its source/responsible party. If necessary, a request to the source is made to remove the discharge, followed by appropriate enforcement actions.</p>
4.2.3.2.4.3	<p>Procedures for removing the source of the illicit discharge; and</p>
	<p>A standard operating procedures manual for detecting and eliminating illicit discharges will be developed. These procedures will cover the detection of an illicit discharge through field operations or reported by citizens or others, identification through field investigations and sampling as needed, and enforcement using the adopted Stormwater Management Ordinance. Follow-up efforts will be conducted until the discharge is removed. Public Service Department staff has been deputized to issue citations. Citations are issued to individuals, who must then appear in Livability Court to address the citation.</p>
4.2.3.2.4.4	<p>Procedures for program evaluation and assessment.</p>

<p>Program evaluation and assessment will be conducted on an annual basis or whenever an apparent problem with the effectiveness of the program arises.</p> <p>The program evaluation will consider the effectiveness of discovering illicit discharges, the types of illicit discharges found, the time frame and method of removing the discharge and means to reduce the number of future illicit discharges and spills. In general, the level of implementation of the BMPs listed below, which are expected to significantly reduce illicit discharges to the City's MS4, will be the primary judge of assessment.</p>	
4.2.3.2.5	How do you plan to inform public employees, businesses, and the general public of hazards associated with illegal discharges and improper disposal of waste? Include in your description how this plan will coordinate with your public education minimum measure and your pollution prevention/good housekeeping minimum measure requirement.
<p>The BMPs developed in Minimum Measures 1 & 2 will address the education and involvement of the groups identified therein. BMPs for those minimum measures will address how the groups can reduce illicit discharge and report potential illicit discharges to the City. City is also in the process of adding signs on inlets that say "No Dumping, Drains to waterway" in highly frequented areas and areas where illegal dumping has been known to occur as part of the storm drain stenciling program.</p>	
4.2.3.2.6	Who is responsible for overall management and implementation of your storm water illicit discharge detection and elimination program and, if different, who is responsible for each of the BMPs identified for this program?
<p>Responsible parties are listed for each of the BMPs below. In general, the Public Service Director has overall responsibility for implementation of the City's SWMP.</p>	
4.2.3.2.7	How will you evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs?
<p>In general, the level of implementation of the BMPs listed below, which are expected to significantly reduce illicit discharges to the City's MS4, will be the primary judge of assessment.</p>	

List of Best Management Practices

BEST MANAGEMENT PRACTICES – Minimum Measure #3			
BMP MM3-1: Establish Legal Authority to Address Illicit Discharges	Completed: <input checked="" type="checkbox"/>		
	Date: 08/21/2007		
Milestone	Schedule*	Frequency	Responsible Party
Develop ordinance template with Charleston area MS4 representatives	2 month	Once	Public Service – Eng. Div. /
Develop draft Stormwater Management Ordinance	2 months	Once	Public Service – Eng. Div. /
Hold 1st reading by City Council	1 month	Once	Public Service – Eng. Div. / GIS Department
Hold 2 nd reading by City Council	2 months	Once	Public Service – Eng. Div. /
Develop final draft of the Stormwater Management Ordinance	1 month	Once	Public Service – Eng. Div./
Adoption of Stormwater Management Ordinance by City Council	1 month	Once	Public Service – Eng. Div./
Measurable Goal			
➤ Adoption of the Stormwater Management Ordinance			

BEST MANAGEMENT PRACTICES – Minimum Measure #3			
BMP MM3-2: Develop Outfall Inventory	Completed: <input checked="" type="checkbox"/>		
	Date: 09/2008		
Milestone	Schedule	Frequency	Responsible Party
Develop procedures for field data collection activities and administration tasks for new development	12 months	Once	Public Service – Eng. Div. /
Implement inventory of City owned outfalls	24 months	Once	Public Service – Eng. Div. /
Complete outfall map	36 months	Permit term	Public Service – Eng. Div./
Measurable Goal			
<ul style="list-style-type: none"> ➤ Develop and implementation of field and office procedures, documented in manuals ➤ Develop City-wide outfall inventory and map of outfalls <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

BMP MM3-2: Outfall Screening	Completed: <input checked="" type="checkbox"/>		
	Date: 09/2008		
Milestone	Schedule	Frequency	Responsible Party
Conduct outfall screening with a schedule to visit of all outfalls during the permit term	60 months	Once	Public Service – Eng. Div. / Legal Department
Maintain records of all data collected	60 months	Ongoing	Public Service – Eng. Div./ CPW SCDOT
Report illicit in annual report	12 months	Annual	Public Service – Eng. Div. / CPW
Refine procedures as necessary	60 months	On-going	Public Service – Eng. Div.
Measurable Goal			
<ul style="list-style-type: none"> ➤ Field crews trained and performing investigations at outfalls ➤ Report and enforce removal of illicit found during field operations. <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

BMP MM3-3: Prioritize Other Potential Illicit Discharges	Completed: <input checked="" type="checkbox"/>		
	Date: 01/2011		
Milestone	Schedule	Frequency	Responsible Party
Evaluate options for investigating other potential illicit	36 months	Once	Public Service – Eng. Div. /
Prioritize investigations for the other potential illicit	60 months	On-going	Public Service – Eng. Div. /
Measurable Goal			

- A prioritization of investigating other potential illicit

* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.

BMP MM3-4: Characterize Discharges from the Peninsula		Completed: <input checked="" type="checkbox"/>	
		Date: 12/28/2010	
Milestone	Schedule	Frequency	Responsible Party
Reevaluate protocol for peninsula basin studies	18 months	Once	Public Service – Eng. Div./ CWS SCDOT
Formalize communications with Charleston Water Service.	12 months	Once	Public Service – Eng. Div. / CWS
Document revised protocol for basin studies	60 months	On-going	Public Service – Eng. Div./ CWS SCDOT
Measurable Goal			
<ul style="list-style-type: none"> ➤ Establish initial communication with sanitary sewer utilities <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

BMP MM3-5: Develop procedures for Evaluating Sanitary Sewer Illicit Discharges		Completed: <input checked="" type="checkbox"/>	
		Date: 08/2010	
Milestone	Schedule	Frequency	Responsible Party
Re-evaluate protocol for peninsula basin studies	18 months	Once	Public Service – Eng. Div./ CWS SCDOT
Formalize communications with Charleston Water Service.	12 months	Once	Public Service – Eng. Div. / CWS
Document revised protocol for basin studies	60 months	On-going	Public Service – Eng. Div./ CWS SCDOT
Measurable Goal:			
<ul style="list-style-type: none"> ➤ Establish initial communication with sanitary sewer utilities <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

* Schedule reflects time from Certificate of Coverage.

4.2.4 CONSTRUCTION SITE STORM WATER RUNOFF MANAGEMENT (MINIMUM MEASURE #4)

4.2.4.1 Permit Requirements

Permit Section	Permit Requirement
4.2.4.1.1	An ordinance or other regulatory mechanism to require erosion and sediment controls, as well as sanctions to ensure compliance, to the extent allowable under State, Tribal, or local law;
4.2.4.1.2	Requirements for construction site operator to implement appropriate erosion and sediment control BMPs;
4.2.4.1.3	Requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter, and sanitary waste at the construction site that may cause adverse impacts to water quality;
4.2.4.1.4	Procedures for site plan review, which incorporate consideration of potential water quality impacts;
4.2.4.1.5	Procedures for receipt and consideration of information submitted by the public; and
4.2.4.1.6	Procedures for site inspection and enforcement of control measures.

4.2.4.2 Decision Process

The Construction Site Runoff minimum measure consists of Best Management Practices (BMP's) that focus on the reduction of pollutants in any storm water runoff to the MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of storm water discharges from construction activity disturbing less than one acre will be considered if it is part of a larger common plan of development or sale that would disturb one acre or more. The BMPs describe the legal authority mechanism (to the extent allowable under State, Tribal or local law) which will be used to require erosion and sediment controls; enforcement procedures and actions to ensure compliance; requirements for construction site operators to implement appropriate erosion and sediment control BMPs; requirements for construction site operators to control waste such as discarded building materials, concrete truck washout, chemicals, litter and sanitary waste at the construction site; procedures for site plan review which incorporate the consideration of potential water quality impacts; procedures for receipt and consideration of information submitted by the public; and procedures for site inspection and enforcement of control measures. Evaluation of the success of this minimum measure will be through careful analysis of the measurable goals for each BMP included in this minimum measure. Measurable goals for each BMP were selected by formulating attainable goals for the various BMP implementation steps or tasks. The responsibility for implementation of this minimum measure is described with each BMP procedure.

Rational Statement:
4.2.4.2.1 What are the mechanisms (ordinance or other regulatory mechanism) you will use to require erosion and sediment controls at construction sites and why you chose that mechanism? If you need to develop this mechanism, describe your plan and a schedule to do so. If your ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with your SWMP description.
<p>The City of Charleston adopted Stormwater Management Ordinance (see Appendix E) contains requirements for sediment/erosion control practices at construction sites, post construction water quality and quantity control requirements, and enforcement for related violations. The ordinance provides the City with the authority to impose penalties to enforce compliance with the sediment/erosion control requirements for construction sites.</p> <p>In addition, the City's Stormwater Design Standards Manual (see Appendix G) provides greater detail and guidance on the proper design, installation, and maintenance procedures for sediment/erosion control practices and post construction water quality and quantity design criteria.</p>

4.2.4.2.2	Your plan to ensure compliance with your erosion and sediment control regulatory mechanism, including the sanctions and enforcement mechanisms you will use to ensure compliance. Describe your procedures for when you will use certain sanctions. Possible sanctions include non-monetary penalties (such as stop work orders), fines, bonding requirements, and/or permit denials for non-compliance.
	<p>The process begins with a review of submitted plans, in which engineers or other certified staff evaluate the erosion control plan for the site as shown on the construction documents. If the plan is inadequate, the submittee will be asked to address this portion of the plan before approval is granted.</p> <p>Construction site inspectors will be in charge of determining whether there has been a violation of the Stormwater Management Ordinance. The responsible entity will be warned and provided a chance to correct the problem. After a specified number of days, the inspector will return to the site and if the problem has not been corrected, then the issue is turned over to code enforcement staff within the Public Services Department who will perform a site visit. If the issue is still not resolved a citation is issued. Civil and criminal actions will continue until the problem has been corrected.</p> <p>The details of this process will be defined in the Storm Water Management Ordinance and Stormwater Design Standards Manual.</p>
4.2.4.2.3	Your requirements for construction site operators to implement appropriate erosion and sediment control BMPs and control waste at construction sites that may cause adverse impacts to water quality. Such waste includes discarded building materials, concrete truck washouts, chemicals, litter, and sanitary waste.
	<p>The City's Stormwater Management Ordinance allows for the creation and enforcement of the Stormwater Design Standards Manual (see Appendix G), which contains the specific requirements for protecting the quality of the receiving waters.</p>
4.2.4.2.4	Your procedures for plan review, including the review of pre-construction site plans, which incorporate consideration of potential water quality impacts. For construction projects that disturb 25 acres or more and discharge the pollutant or pollutants of concern to a water on the South Carolina 303(d) List of Impaired waters, the Stormwater Pollution Prevention Plans prepared by applicants for construction sites that you review must contain a written quantitative and qualitative assessment showing that the BMPs selected will control the construction and post construction stormwater discharges so that the stormwater discharges will not cause or contribute to a violation of water quality standards.
	<p>All procedures for plan review are provided in the Stormwater Design Standards Manual (see Appendix G). This manual categorizes new development projects such that appropriate plan review procedures can be implemented. These categories include issues related to antidegradation requirements (>25 acre projects) and project that discharge to impaired waters and those with an adopted TMDL.</p> <p>The sediment and erosion control requirements will meet, at a minimum, the requirements set forth in Section 72-300 of the Stormwater Management and Sediment Reduction Act of 1991.</p>
4.2.4.2.5	Your procedures for receipt and consideration of information submitted by the public? Consider coordinating this requirement with your public education program.
	<p>A Citizen Help Desk has been setup and implemented online at http://www.govhost.com/charleston%2Dsc/. This provides a place where anyone can submit a request, complaint, or notify the City of any issue to be addressed. Once in the system, the "ticket" is distributed to the appropriate department.</p>
4.2.4.2.6	Your procedures for site inspection and enforcement of control measures, including how you will prioritize sites for inspection.

<p>As discussed in section 3.4.2.2 Construction Inspections, a formalized construction inspection program will be developed. Part of the inspection process will target proper construction of storm water management BMPs.</p> <p>The following is the procedure that will be followed when inspecting construction sites:</p> <ul style="list-style-type: none"> • A silt fence inspection is performed prior to any work commencing on the project site; • Inspections will be conducted at least bi-monthly for the duration of construction and after large rain events; • Water quality complaints will be followed up within 48 hours; • All inspections will be properly documented; and • After construction is complete a final inspection of permanent water quality BMPs will be conducted. 	
4.2.4.2.7	Who is responsible for the overall management and implementation of your construction site storm water control program and, if different, who is responsible for each of the BMPs identified for this program.
See chart below for the responsible parties for each BMP.	
4.2.4.2.8	Describe how you will evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs?
<p>The Stormwater Management Ordinance and manual have been adopted. The development and implementation of these and the other measures listed below are expected to provide a significant improvement in the quality of stormwater runoff into and from the City's MS4. Completion of these tasks will therefore be used as the measuring stick of meeting the intent of the permit.</p>	

List of Best Management Practices

BEST MANAGEMENT PRACTICES – Minimum Measure #4			
BMP MM4-1: Revise Storm Water Management Ordinance	Completed: <input checked="" type="checkbox"/>		
	Date: 08/21/2007		
Milestone	Schedule	Frequency	Responsible Party
Find deficiencies in current ordinance regarding construction plan review activities and prepare draft storm water management ordinance	8 months	Once	Public Service – Eng. Div. / Legal Dept.
Submit draft revisions to City Council for review and approval	12 months	Once	Public Service – Eng. Div. / Legal Dept.
Pass final ordinance revisions	18 months	On-going	Public Service – Eng. Div. / Legal Dept.
Measurable Goal			
<p>➤ Adopt a comprehensive Stormwater Management Ordinance</p> <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

BMP MM4-2: Revise Erosion Control Requirements	Completed: <input checked="" type="checkbox"/>		
	Date: January, 2010		
Milestone	Schedule	Frequency	Responsible Party
Refine coordination procedures between the City of Charleston construction permitting and OCRM plan approval to provide for more effective permit tracking, recording, and reporting procedures	8 months	Once	Public Service – Eng. Div./ OCRM
Develop draft Stormwater Design Standards Manual	8 months	Once	Public Service – Eng. Div.

Submit manual for review by other City Departments and the public	12 months	Once	Public Service – Eng. Div.
Submit manual to City Council for adoption	18 months	Once	Public Service – Eng. Div.
Measurable Goal			
➤ Develop and implement Stormwater Design Standards Manual * Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.			

BMP MM4-3: Revise Plan Review procedures	Completed: <input checked="" type="checkbox"/>		
	Date: January, 2010		
Milestone	Schedule	Frequency	Responsible Party
Establish plan review checklist and procedures	8 months	Once	Public Service
Incorporate procedures and plan requirements in Stormwater Design Standards manual	8 months	Once	Public Service
Submit these requirements to other City Departments and the public for review	12 months	Once	Public Service
Submit manual to City Council for adoption	14 months	Once	Public Service
Measurable Goal			
➤ To educate contractors and inspectors on BMPs and proper installation to improve water quality * Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.			

BMP MM4-4: Revise Site Inspection procedures	Completed: <input checked="" type="checkbox"/>		
	Date: 02/18/2010		
Milestone	Schedule	Frequency	Responsible Party
Establish procedures and schedules for inspection of construction sites and enforcement	12 months	Once	Public Service – Eng. Div.
Training inspectors on City's new requirements in Stormwater Management Ordinance	12 months	Once	Public Service – Eng. Div.
Implement procedures by site inspectors	18 months	Once	Public Service – Eng. Div.
Measurable Goal:			
➤ To implement site inspection and enforcement procedures * Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.			

BMP MM4-5: Develop Education Programs	Completed: <input type="checkbox"/>		
	Date:		
Milestone	Schedule	Frequency	Responsible Party
Develop a half-day contractor education course focusing on sediment and erosion control issues, permitting requirements, and proper BMP installation and maintenance	12 months	Once	Public Service – Eng. Div.
Provide half-day contractor education course	18 months	Annually	Public Service – Eng. Div.

Develop a half-day course for City building inspectors focusing on sediment and erosion control issues, permitting requirements, and proper BMP installation and maintenance	12 months	Once	Public Service – Eng. Div. / Public Service - Inspections
Provide half-day building inspector course	18 months	As needed	Public Service – Eng. Div. / Public Service - Inspections
Measurable Goal:			
<p>➤ To educate contractors and inspectors on BMPs and proper installation to improve water quality</p> <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

4.2.5 POST-CONSTRUCTION STORM WATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT (MINIMUM MEASURE #5)

4.2.5.1 Permit Requirements

Permit Section	Permit Requirement
4.2.5.1.1	Within eighteen months from the effective date of this permit, develop, implement, and enforce a program to address storm water runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development or sale, that discharge into your regulated SMS4. Your program must ensure that controls that would prevent or minimize water quality impacts are in place;
4.2.5.1.2	Develop and implement strategies which include a combination of structural and/or non-structural BMPs appropriate for your community; and
4.2.5.1.3	Use an ordinance or other regulatory mechanism to address post-construction runoff from new development and redevelopment projects to the extent allowable under State, Tribal or local law; and
4.2.5.1.4	Ensure adequate long-term operation and maintain of BMPs.

4.2.5.2 Decision Process

The post-construction storm water management program is designed to give the City of Charleston the authority to require structural and non-structural storm water quality BMPs on construction sites. It also makes owners responsible for the operation and maintenance of permanent BMPs and gives the City of Charleston the authority to conduct post-construction site inspections and the ability to enforce punishment of violators. The following table summarizes the proposed BMPs that will be developed and implemented to meet the requirements of the public education and outreach minimum measure.

Rational Statement:	
4.2.5.2.1	Your program to address storm water runoff from new development and redevelopment projects. Include in this description any specific priority areas for this program.

<p>The Stormwater Management Ordinance and the related Stormwater Design Standards Manual include sections that address long-term runoff treatment as well as operation and maintenance responsibilities. The focus initially will be on new development, with future tasks expected to include previously developed areas that may not have adequate water quality BMPs. An inventory of existing City-owned facilities will be developed and inspected according to a predefined schedule. The Storm Water Management Ordinance will include a section defining long-term operation and maintenance responsibilities. Existing facilities will be inspected as defined in the ordinance and owners will be notified of deficiencies.</p> <p>Watersheds in the City of Charleston will be delineated and reviewed for impaired waterbodies (TMDL's) and other pollutants of concern. Eventually these watersheds will be studied using computer models and other means to establish a prioritization of retrofitting to address needed water quality improvements.</p>	
4.2.5.2.2	How will your program be specifically tailored for your local community, minimize water quality impacts, and maintain pre-development runoff conditions.
	See Question 4.2.5.2.1
4.2.5.2.3	Any non-structural BMPs in your program, including, as appropriate:
4.2.5.2.3.1	Policies and ordinances that provide requirements and standards to direct growth to identified areas, protect sensitive areas such as wetlands and riparian areas, maintain and/or increase open space (including a dedicated funding source for open space acquisition), provide buffers along sensitive water bodies, minimize impervious surfaces, and minimize disturbance of soils and vegetation;
	<p>The City of Charleston maintains a comprehensive land use plan, called the Charleston Century V plan. This is a working, frequently updated document for the citizens of the City detailing the five areas of emphasis for future planning. These five areas include: Urban growth, City development (including infill and redevelopment), Mobility, Work centers, and Municipal services. The entire document is available for downloading at http://www.charlestoncity.info/shared/docs/0/century_v_plan4.pdf.</p>
4.2.5.2.3.2	Policies or ordinances that encourage infill development in higher density urban areas, and areas with existing storm sewer infrastructure;
	See statement in 4.2.5.2.3.1.
4.2.5.2.3.3	Education programs for developers and the public about project designs that minimize water quality impacts; and
	<p>The City of Charleston is proposing to enter an interagency agreement with "USCS-WEC" and Clemson University Cooperative Extension Service for implementation of public education programs. The education programs that will be used in this first permit cycle are detailed in section 4.2.1 and 4.2.4.</p>
4.2.5.2.3.4	Other measures such as: minimization of the percentage of impervious area increase after development, use of measures to minimize directly connected impervious areas, and source control measures often thought as good housekeeping, preventive maintenance and spill prevention.
	The City of Charleston maintains a zoning ordinance.
4.2.5.2.4	What are any structural BMPs in your program, including:
4.2.5.2.4.1	Storage practices such as wet ponds, and extended-detention outlet structures;
	Practices such as are allowed to be constructed with new and re-development.
4.2.5.2.4.2	Filtration practices such as grassed swales, bioretention cells, sand filters and filter strips; and
	Practices such as these are also allowed to be constructed with new and re-development.

4.2.5.2.4.3	Infiltration practices such as infiltration basins and infiltration trenches.
	Practices such as these are again allowed to be constructed with new and re-development.
4.2.5.2.5	What are the mechanisms (ordinance or other regulatory mechanisms) you will use to address post-construction runoff from new developments and redevelopments and why did you choose that mechanism. If you need to develop a mechanism, describe your plan and a schedule to do so. If your ordinance or regulatory mechanism is already developed, include a copy of the relevant sections with your program.
	The City of Charleston maintains a comprehensive storm water management ordinance which addresses post-construction runoff controls for all new and re-development projects greater than 1 acre. Some examples include the requirement of smaller project sites to address runoff quality and the development of a BMP inventory with a corresponding maintenance tracking system.
4.2.5.2.6	How will you ensure the long-term operation and maintenance (O&M) of your selected BMPs? Options to help ensure that future O&M responsibilities are clearly identified include an agreement between you and another party such as the post-development landowners or regional authorities.
	The City of Charleston will only approve construction plans that have a signed agreement by the developer or owner defining operation and maintenance responsibilities and corresponding schedules. Furthermore, the City of Charleston will conduct post-construction inspections to ensure long-term compliance. All such data will be tracked and maintained in a system currently under development.
4.2.5.2.7	Who is responsible for the overall management and implementation of your post-construction SWMP and, if different, who is responsible for each of the BMPs identified for this program?
	In general, responsibility falls on the Public Service Department, or more specifically, its Director. See section below for the responsible parties for each BMP.
4.2.5.2.8	How you will evaluate the success of this minimum measure.
	The Stormwater Management Ordinance and corresponding Stormwater Design Standards Manual have been adopted. The resulting application of the new requirements and design criteria are expected to provide a significant improvement in the quality of stormwater runoff into and from the City's MS4. Completion of these and other tasks listed below will therefore be used as the measuring stick of meeting the intent of the permit.

List of Best Management Practices

BEST MANAGEMENT PRACTICES – Minimum Measure #5			
BMP MM5-1: Develop Post-Construction Ordinances	Completed: <input checked="" type="checkbox"/>		
	Date: 08/21/ 2007		
Milestone	Schedule	Frequency	Responsible Party
Develop ordinance requiring long-term runoff treatment and continued maintenance of post-construction BMPs	12 months	Once	Public Service
Submit draft revisions to City Council for review and approval	18 months	Once	Public Service
Pass final ordinance revisions	24 months	On-going	Public Service
Measurable Goal			
<p>➤ Adoption of the Stormwater Management Ordinance</p> <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			

BMP MM5-2: Develop Post-Construction Plan Review Procedures		Completed: <input type="checkbox"/>	
		Date:	
Milestone	Schedule	Frequency	Responsible Party
Develop and refine a process to obtain development construction plans for review	12 months	Once	Public Service
Develop and refine internal tracking and plan review procedures	18 months	Once	Public Service
Notify developers when revisions are made to the Stormwater Design Standards manual	As needed	On-going	Public Service
Implement the development plans review process	36 months	On-going	Public Service
Measurable Goal:			
<ul style="list-style-type: none"> ➤ Implement the development plans review process ➤ Educate the local development community ➤ Develop a process to obtain development construction plans for review to determine compliance with local post-construction runoff regulations 			
* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.			

BMP MM5-3: Develop BMP Inventory		Completed: <input type="checkbox"/>	
		Date:	
Milestone	Schedule	Frequency	Responsible Party
Develop and refine a process to obtain development construction plans for review	12 months	Once	Public Service
Develop and refine internal tracking and plan review procedures	18 months	Once	Public Service
Notify developers when revisions are made to the Stormwater Design Standards manual	As needed	On-going	Public Service
Implement the development plans review process	24 months	On-going	Public Service
Measurable Goal			
<ul style="list-style-type: none"> ➤ Implement the development plans review process ➤ Educate the local development community ➤ Develop a process to obtain development construction plans for review to determine compliance with local post-construction runoff regulations 			
* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.			

4.2.6 POLLUTION PREVENTION / GOOD HOUSEKEEPING FOR MUNICIPAL OPERATIONS (MINIMUM MEASURE #6)

4.2.6.1 Permit Requirements

Permit Section	Permit Requirement
4.2.6.1.1	Develop and implement an operation and maintenance program that includes a training component and has the ultimate goal of preventing or reducing pollutant runoff from municipal operations as an integral part of the SWMP; and
4.2.5.1.2	Using training materials that are available from SCDHEC, EPA, or other organizations, include in your program employee training to prevent and reduce storm water pollution

from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance.

4.2.6.2 Decision Process

The Pollution Prevention / Good Housekeeping minimum measure consists of Best Management Practices (BMP's) that focus on training and on the prevention or reduction of pollutant runoff from municipal operations. The BMPs describe the use of available training materials available from the EPA, the State, or other organizations; and development and implementation of Stormwater Pollution Prevention Plans for specific municipal operations. A list of municipally-owned industrial facilities to have SWPPP developed is provided in Appendix H. The SWPPPs will be designed to reduce the discharge of pollutants from City-owned property including maintenance procedures, inspection procedures, structural BMPs, and waste disposal procedures.

Evaluation of the success of this minimum measure will be through careful analysis of the measurable goals for each BMP included in this minimum measure. Measurable goals for each BMP were selected by formulating attainable goals for the various BMP implementation steps or tasks. The responsibility for implementation of this minimum measure is described with each BMP procedure.

The following section addresses the questions listed in the General Permit for Discharges from Municipal Separate Storm Sewer Systems regarding illicit discharge detection and elimination BMPs. Each question is copied directly from the permit and the section number for each question in this report corresponds with the same section number in the general permit.

Rational Statement:	
4.2.6.2.1	<p>Your operation and maintenance program to prevent or reduce pollutant runoff from your municipal operations? Your program must specifically list the municipal operations that are impacted by this operation and maintenance program. You must also include a list of industrial facilities you own or operate that are subject to SCDHEC NPDES General Permit for Storm Water Discharges Associated with Industrial Activity (SCR000000) or individual NPDES permits for discharges of storm water associated with industrial activity that ultimately discharge to your MS4. Include the SCDHEC permit number or a copy of the Industrial NOI form for each facility.</p> <p>The City has a storm sewer maintenance program including maintenance and routine inspection schedules, to ensure prompt response to complaints, and to maintain the system, as necessary. The City of Charleston's street sweepers will continue to be used and maintained in proper working order, with at least one (1) trained and dedicated driver. The streets will continue to be swept on an as-needed basis. The City will continue to develop and implement Stormwater Pollution Prevention Plans (SWP3) for the Public Works Operation Center. The City of Charleston will also develop a SWP3 for the Parks Maintenance Center at 823 Meeting Street and the Service Centers of the Fire and Police Departments.</p>
4.2.6.2.2	<p>Are there any government employee training program you will use to prevent and reduce storm water pollution from activities such as park and open space maintenance, fleet and building maintenance, new construction and land disturbances, and storm water system maintenance? Describe any existing, available materials you plan to use. Describe how this training program will be coordinated with the outreach programs developed for the public information minimum measure and the illicit discharge minimum measure.</p> <p>The Parks & Recreation and Public Works Departments use only personnel that are certified applicators for herbicides, pesticides, and fertilizers. Public Works personnel are trained annually on SWP3 spill response and other storm water related issues.</p>
4.2.6.2.3	Your program must specifically address the following areas:
4.2.6.2.3.1	Maintenance activities, maintenance schedules, and long-term inspection procedures for controls to reduce floatables and other pollutants to your MS4?

See Question 4.2.6.2.1
4.2.6.2.3.2 Controls for reducing or eliminating the discharge of pollutants from streets, roads, highways, municipal parking lots, maintenance and storage yards, waste transfer stations, recycling collection centers, fleet or maintenance shops with outdoor storage areas, salt/sand storage locations, and snow disposal areas you operate?
See Question 4.2.6.2.1
4.2.6.2.3.3 Procedures for the proper disposal of waste removed from your MS4 and your municipal operations, including dredge spoil, accumulated sediments, floatables, and other debris?
All waste is sent to either the Bees Ferry Landfill in Charleston County or the Big Creek Landfill, in Williamston, Anderson County, South Carolina.
4.2.6.2.3.4 Your procedures to ensure that new flood management projects are assessed for impacts on water quality and existing projects are assessed for incorporation of additional water quality protection devices or practices.
As necessary, the City of Charleston will create changes to zoning regulations and to the Planning Department to consider storm water impacts of future development.
4.2.6.2.4 Who is responsible for overall management and implementation of your pollution prevention/good housekeeping program and, if different, who is responsible for each of the BMPs identified for this program?
See Summary Table at the end of this section.
4.2.6.2.5 How will you evaluate the success of this minimum measure, including how you selected the measurable goals for each of the BMPs.
See Summary Table at the end of this section.

List of Best Management Practices

BMP MM6-1: Provide Appropriate Staff Training		Completed: <input checked="" type="checkbox"/>	
		Date: 03/2010	
Milestone	Schedule	Frequency	Responsible Party
Identify City operations whose staff require water quality related training	12 months	Once	Public Service – Eng. Div.
Develop BMPs for appropriate City facilities and training for respective field staff	18 months	Once	Public Service – Eng. Div.
Begin implementation of training program	24 months	Annually	Public Service – Eng. Div.
Measurable Goal			
<p>➤ Train staff to avoid water quality impacts associated with their responsibilities and activities.</p> <p>* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.</p>			
BMP MM6-3: Develop BMPs for Parks Department Equipment Yards		Completed: <input type="checkbox"/>	
		Date:	
Milestone	Schedule	Frequency	Responsible Party
Develop BMPs including spill response plan, preventative maintenance schedules, and proper disposal procedures	12 months	Once	Public Service – Eng. Div. Parks Department

Train City facility and field staff on the procedures for spill response activities, preventative maintenance, and proper disposal	18 months	Once per permit cycle	Public Service – Eng. Div. Parks Department
Measurable Goal			
➤ To develop BMPs and training to avoid water quality impacts associated with these facilities			
* Schedule reflects time from certificate of coverage for completing milestones. Frequency is given per permit cycle.			

5.0 Monitoring, Record Keeping, and Reporting

The City of Charleston has completed a stormwater characterization study of the runoff from the peninsula. The study included grab sampling 6 different locations at specific tidal conditions under both dry and wet weather conditions in order to evaluate bacterial concentrations in the flow from the peninsula. The results of this study were sent to DHEC.

6.0 Certification

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”

Joseph P. Riley, Jr.

Date

Mayor

Title